IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of	:	LEMMA et al.
Serial No.	:	10/509,414
Confirmation No.	:	8042
Filing Date	:	September 23, 2004
Group Art Unit	:	2131
Examiner	:	Christian LaForgia

APPEAL BRIEF
On Appeal from Group Art Unit 2131

Date: July 28, 2008

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TABLE OF CONTENTS

I. REAL PARTY IN INTEREST

The real party in interest is Koninklijke Philips Electronics N.V., the assignee of record.

II. RELATED APPEALS AND INTERFERENCES

Appellant is not aware of any pending appeals, judicial proceedings, or interferences which may be related to, directly affect, be directly affected by, or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

a) Claims 1-7, 9, 10, 13-17 are pending.

b) Claims 1-7, 9, 10, 13-17 stand rejected and are the subject of this appeal.

c) Claims 8, 11 and 12 are cancelled.

d) Claims 1, 9, 13 and 16 are independent.

IV. STATUS OF AMENDMENTS

The claims listed in section "VIII. Claims Appendix" of this Appeal Brief correspond to the claims as listed and submitted in Appellant's response of August 22, 2007. On November 29, 2007, Appellant submitted a response with a listing of claims, however, no claim amendments were presented in this response. No claim amendments have been submitted following the response of August 22, 2007. Nor are any claim amendments pending.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The claimed invention, as recited in claim 1, is directed to a method of generating a watermark signal for embedding in a multimedia host signal (page 5, line 16 to page 7, line 30), the method comprising: taking a first sequence of values; applying a window shaping function having a predetermined width to said first sequence of values so as to form a smoothly varying signal, wherein the integral over the predetermined width of the window shaping function is zero (page 5, lines 16-24, page 9, lines 3-12); and embedding said smoothly varying signal into the host signal.

The claimed invention, as recited in claim 6, is directed to an apparatus arranged to generate a watermark signal suitable for embedding in a host multimedia signal (Fig. 6; page 6, line 16 to page 10, line 4), the apparatus comprising: a signal generator arranged to generate a watermark signal by taking a first sequence of values; and processing means arranged to apply a window shaping function having a predetermined width to said first sequence of values so as to form a smoothly varying signal suitable for embedding in a host signal, wherein the integral over said predetermined width of the window shaping function is zero (page 5, lines 16-24, page 9, lines 3-12).

The claimed invention, as recited in claim 13, is directed to a method of detecting a watermark signal embedded in a multimedia signal (page 10, line 5 to page 15, line 24), the method comprising: receiving the multimedia signal; extracting an estimate of a watermark from the received signal by assuming that the watermark comprises a sequence of values to which a window shaping function having a predetermined width has been applied (page 12, line 17 to page 13, line 23), the integral over said predetermined width of the window shaping function being zero (page 12, line 17 to page 13, line 17); and processing the estimate of the watermark with a referenced version of the watermark so as to determine whether the received signal is watermarked (page 13, line 24 to page 15, line 24).

The claimed invention, as recited in claim 16, is directed to a watermark detector apparatus arranged to detect whether a watermark signal is embedded within a multimedia signal (Fig. 11; page 10, line 5 to page 15, line 24), the watermark detector comprising: a receiver arranged to receive the multimedia signal; an extractor arranged to extract an estimate of a watermark from the received signal by assuming that the watermark comprises a sequence of values to which a window shaping function having a predetermined width has been applied (page 12, line 17 to page 13, line 23), the integral over said predetermined width of the window shaping function being zero (page 12, line 17 to page 13, line 17); and a processor arranged to process the estimate of the watermark with a referenced version of the watermark so as to determine whether the received signal is watermarked (page 13, line 24 to page 15, line 24).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1, 5, 9, 10, 13-17 are properly rejected under 35 USC 102(e) as anticipated by Johnston et al. (USP 7,131,007, hereinafter "Johnston").

Whether claims 2-4 are properly rejected under 35 U.S.C. 103(a) over Johnston and Depalle et al. (USP 5,401,897, hereinafter "Depalle").

Whether claim 6 is properly rejected under 35 U.S.C. 103(a) over Johnston and Levine et al. (USP 6,209,094).

Whether claim 7 is properly rejected under 35 U.S.C. 103(a) over Johnston and Harris ("On the Use of Windows for Harmonic Analysis with Discrete Fourier Transform").

VII. ARGUMENT

Appellant respectfully traverses the rejections in accordance with the detailed arguments set forth below.

A. claims 1, 5, 9, 10, 13-17 are not properly rejected under 35 USC 102(e) as anticipated by Johnston.

1. Claim 1

Appellant's claim 1 includes the features of: "applying a window shaping function having a predetermined width to said first sequence of values so as to form a smoothly varying signal, wherein the integral over the predetermined width of the window shaping function is zero."

In the "Response to Arguments" section of the final Office action of June 26, 2008, the Examiner states the he disagrees with appellant that Johnston Fig. 3a is representative of a window function and believes Fig. 3b is more illustrative of the window function.

The Examiner provides no support for this assertion. Clearly Johnston teaches Fig. 3a is the window shaping function. Johnston col. 5, line 49 to col. 6, line 5 states that each message bit is represented by a phase window function 130 (fig. 3a). Johnston does not teach that the waveform, which was shaded by the Examiner, is a window shaping function. Furthermore, the Examiner does not support his assertion by pointing out where Johnston supports the Examiner's assertions.

Appellant notes that the waveform of FIG. 3(b), that is shaded by the Examiner, in the illustration of the Office action corresponds to a product of message bits and Johnston's window shaping function, using a -1 and +1 encoding of the message bits for logic values of zero and one, respectively. The example message bits are illustrated below the example waveform. When the value of message bit is zero, the illustrated product is negative; when the value of message bit is one, the illustrated product is positive. This correlation between the value of the message bit and the value of the product of the message bit and the window shaping function can only exist if the window shaping function does not change sign. If the window shaping function does not change sign, the integral of the function cannot be zero.

Johnston fails to teach a window shaping function that is applied to a sequence of values, wherein the integral over the width of the window shaping function is zero.

Johnston specifically teaches:

> "Windowing is a simple multiplication between win(n) and $s_{k(n)}$... The window function used for segmenting the signal 102 into blocks is as follows:
> $win(n)=sin((\pi(n+0.5))/N), 0 \leq n \leq N-1$" (Johnston, column 4, lines 45-55);
>
> and
>
> "The phase window function shown in FIG. 3(a) is defined as:
> $O(b)=sin^2((\pi(b+1))/2), -1.0 \leq b \leq 1.0$" (Johnston, column 5, lines 51-54);
>
> and
>
> "the phase window function, Equation(4), is modified as:

$O(b)=\sin^2((\pi(b+m)/(2m)),-m\leq b\leq m$" (Johnston, column 6, lines 33-35).

Each of Johnston's defined window shaping functions returns a positive value over the range of the function; therefore, an integral of any of these window shaping functions over a width of the function cannot be zero.

In addition, in the "Response to Arguments" section of the final Office action, the Examiner states in paragraph 7, that very little patentable weight should be afforded to a wherein clause. Appellant respectfully submits that the Examiner is misapplying the case law. The case law states that little patentable weight is given to a wherein clause which simply expresses an intended result.

However, in appellant's claim 1 the phrase "wherein the integral over the window function is zero" is not an intended result but it is a requirement of the feature. That is, a requirement of applying a window shaping function having a predetermined width to said first sequence of values so as to form a smoothly varying signal, is that the integral over the predetermined width of the window shaping function is zero. Furthermore, the Examiner does not even address the fact that claims 13 and 16 do not recite the "wherein."

MPEP 2131 states:

> "A claim is anticipated only if ***each and every element*** as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The ***identical invention*** must be shown in as ***complete detail*** as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

For at least the foregoing reasons, it is respectfully submitted that the features of claim 1 cannot be found and are not suggested by Johnston. Furthermore, the Examiner's position is not supported by the actual teachings of Johnston, nor does the Examiner provide any evidence supporting the position set out in the final Office action. Additionally, the case law with regard

to the "wherein" clause does not apply to claim 1. For at least the foregoing reasons the rejection should be reversed.

2. Claim 9

Appellant's independent claim 9 is directed to an apparatus arranged to generate a watermark signal suitable for embedding in a host multimedia signal, the apparatus comprising: a signal generator arranged to generate a watermark signal by taking a first sequence of values; and processing means arranged to apply a window shaping function having a predetermined width to said first sequence of values so as to form a smoothly varying signal suitable for embedding in a host signal, wherein the integral over said predetermined width of the window shaping function is zero.

In the final Office Action, page 5, the Examiner argues against claim 9 together with claim 1. Therefore, Appellant repeats the arguments above from claim 1 pointing out why claim 9 is not anticipated by Johnston and the rejection should be reversed.

3. Claim 13

Appellant's independent claim 13 is directed to a method of detecting a watermark signal embedded in a multimedia signal. The method includes, in part: extracting an estimate of a watermark from the received signal by assuming that the watermark comprises a sequence of values to which a window shaping function having a predetermined width has been applied, the integral over said predetermined width of the window shaping function being zero.

In the final Office Action, pages 5-6, the Examiner submits arguments substantially similar to those set forth in the rejection of claim 1. Therefore, Appellant repeats the arguments above from claim 1 pointing out why claim 13 is not anticipated by Johnston and the rejection should be reversed.

4. Claim 16

Appellant's independent claim 16 is directed to a watermark detector apparatus arranged to detect whether a watermark signal is embedded within a multimedia signal. The watermark detector includes, in part: an extractor arranged to extract an estimate of a watermark from the received signal by assuming that the watermark comprises a sequence of values to which a window shaping function having a predetermined width has been applied, the integral over said predetermined width of the window shaping function being zero.

In the final Office Action, pages 5-6, the Examiner submits arguments substantially similar to those set forth in the rejection of claim 1. Therefore, Appellant repeats the arguments above from claim 1 pointing out why claim 13 is not anticipated by Johnston and the rejection should be reversed.

5. Claims 5 and 10

Claim 5 depends from claim 1 and includes all the features of claim 1. Claim 10 depends from claim 9 and includes all the features of claim 9. Furthermore, each of claims 5 and 10 includes additional distinguishing features. Accordingly, Appellant essentially repeats the above arguments from claims 1 and 9 and respectfully submits that claims 5 and 10 are allowable by virtue of their dependency, as well as the additional subject matter recited therein and not shown in the reference, thus the rejection should be reversed.

6. Claims 14 and 15

Claims 14 and 15 depend from claim 13 and include all the features of claim 13. Additionally, each dependent claim includes further distinguishing features. Accordingly, Appellant essentially repeats the above arguments from claims 1 & 13 and respectfully submits

that claims 14 and 15 are allowable by virtue of their dependency, as well as the additional subject matter recited therein and not shown in the reference, thus the rejection should be reversed.

7. Claim 17

Claim 17 depends from claim 16 and includes all the limitations of claim 16 and claim 17 includes further distinguishing features. Accordingly, Appellant essentially repeats the above arguments from claims 1 & 16 and respectfully submits that claim 17 is allowable by virtue of its dependency, as well as the additional subject matter recited therein and not shown in the reference, thus the rejection should be reversed.

B. Claims 2-4 are not properly rejected under 35 U.S.C. 103(a) over Johnston and Depalle;

claim 6 is not properly rejected under 35 U.S.C. 103(a) over Johnston and Levine et al.; and

claim 7 is not properly rejected under 35 U.S.C. 103(a) over Johnston and Harris.

Claims 2-4, 6 and 7 depend from claim 1 and includes all the limitations of claim 1, plus each dependent claim includes further distinguishing features.

MPEP 2142 states:

> "To establish a *prima facie* case of obviousness … the prior art reference (or references when combined) ***must teach or suggest all the claim limitations***… If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness."

In each of these 35 U.S.C. 103(a) rejections, the Examiner relies upon Johnston for teaching the features of claim 1 and notes the secondary reference as teaching the features in each dependent claim. As shown above, Johnston fails to teach each and every feature of claim 1, therefore, the combination of reference fails to teach all the claimed features. Accordingly,

Appellant respectfully maintains that the rejections of claims 2-4 and 6-7 under 35 U.S.C. 103(a) that rely upon Johnston for teaching the elements of claim 1 are unfounded, per MPEP 2142, and should be reversed.

CONCLUSION

In light of the above, appellant respectfully submits that the rejection of claims 1-7, 9, 10, 13-17 is in error, legally and factually, and must be reversed.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

1.(Previously presented): A method of generating a watermark signal for embedding in a multimedia host signal, the method comprising:

taking a first sequence of values;

applying a window shaping function having a predetermined width to said first sequence of values so as to form a smoothly varying signal, wherein the integral over the predetermined width of the window shaping function is zero; and

embedding said smoothly varying signal into the host signal.

2. (Original) A method as claimed in claim 1, wherein the window shaping function has an anti-symmetric temporal behavior.

3. (Original) A method as claimed in claim 1, wherein the window shaping function has a bi-phase behavior.

4. (Original) A method as claimed in claim 3, wherein the bi-phase window comprises at least two Hanning windows of opposite polarities.

5. (Original) A method as claimed in claim 1, wherein the frequency spectrum of the smoothly varying signal has a DC component less than a component of any non-DC peak within the frequency spectrum.

6. (Original) A method as claimed in claim 1, wherein each value of the first sequence is represented by a pulse train of width T_s so as to form a rectangular wave signal, the window shaping function also being of width T_s.

7. (Original) A method as claimed in claim 1, wherein said first sequence of values is convolved with the window shaping function so as to form said smoothly varying signal.

8 (Canceled)

9.(Previously presented): An apparatus arranged to generate a watermark signal suitable for embedding in a host multimedia signal, the apparatus comprising:

a signal generator arranged to generate a watermark signal by taking a first sequence of values; and

processing means arranged to apply a window shaping function having a predetermined width to said first sequence of values so as to form a smoothly varying signal suitable for embedding in a host signal, wherein the integral over said predetermined width of the window shaping function is zero.

10. (Original) An apparatus as claimed in claim 9, wherein the apparatus further comprises a watermark embedding apparatus that embeds said smoothly varying signal into the host signal.

11-12 (Canceled)

13.(Previously presented): A method of detecting a watermark signal embedded in a multimedia signal, the method comprising:

receiving the multimedia signal;

extracting an estimate of a watermark from the received signal by assuming that the watermark comprises a sequence of values to which a window shaping function having a predetermined width has been applied, the integral over said predetermined width of the window shaping function being zero; and

processing the estimate of the watermark with a referenced version of the watermark so as to determine whether the received signal is watermarked.

14.(Previously presented): A method as claimed in claim 13, the method further comprising applying the window shaping function having the predetermined width to the received signal, the integral over said predetermined width of the window shaping function being zero.

15.(Previously presented): A method as claimed in claim 13, wherein the watermark signal has a payload, and the method further comprising determining the payload of the watermark.

16.(Previously presented): A watermark detector apparatus arranged to detect whether a watermark signal is embedded within a multimedia signal, the watermark detector comprising:

a receiver arranged to receive the multimedia signal;

an extractor arranged to extract an estimate of a watermark from the received signal by assuming that the watermark comprises a sequence of values to which a window shaping function having a predetermined width has been applied, the integral over said predetermined width of the window shaping function being zero; and

a processor arranged to process the estimate of the watermark with a referenced version of the watermark so as to determine whether the received signal is watermarked.

17.(Previously presented): An apparatus as claimed in claim 16, wherein the apparatus further comprises a unit arranged to apply the window shaping function having the predetermined width to the received signal, wherein the integral over said predetermined width of the window shaping function is zero.

IX. EVIDENCE APPENDIX

No evidence has been submitted pursuant to §§ 1.130, 1.131, or 1.132 of this title nor any other evidence entered by the examiner and relied upon by appellant in the appeal.

X. RELATED PROCEEDINGS APPENDIX

Appellant is not aware of any appeals or interferences related to the present application.